

AMENDMENTS TO THE DRAWINGS

Please replace the version of Figure 2 currently on file with the enclosed replacement sheet for Figure 2. Applicants have amended Figure 2 to change the second use of reference numeral "42" to reference numeral "48." Applicants respectfully request entry of the replacement sheet for Figure 2.

Enclosure: Replacement Sheet for Figure 2

## **REMARKS/ARGUMENTS**

### **AMENDMENTS TO THE DRAWINGS**

The drawings stand objected to as failing to comply with 37 C.F.R. §§ 1.84(p)(4) and 1.84(p)(5) because the reference numeral "42" had been used to designate both a screw and an annular spacer in Figure 2 and because the reference numeral "48" was not included in the drawings. Applicants have enclosed a replacement sheet for Figure 2 with the use of the reference numeral "42" for the screw amended to the reference numeral "48." Applicants respectfully request withdrawal of the objection to the drawings.

### **STATUS OF CLAIMS**

Applicants have amended Claims 1, 15, 17, 22, 23, 25, 31, 35, 39, 42, and 50. Applicants have cancelled Claims 16, 24, 33-34, and 40-41, and thus, the rejections of Claims 16, 24, 33-34, and 40-41 are moot. Applicants respectfully request reconsideration of pending Claims 1, 3, 5-15, 17-23, 25-32, 35-39, 42-45, and 50-51 in light of the following remarks.

### **CLAIM OBJECTIONS**

Claims 39, 42-45, and 50-51 stand objected to due to various informalities. Applicants have amended Claims 39, 45, and 50 as suggested by the Examiner on pages 4-5 of the Office Action. Applicants respectfully request removal of the objection to Claims 39, 42-45, and 50-51.

### **CLAIM REJECTIONS - 35 U.S.C. § 112**

Claims 17-18, 23, 25, 29-30, 35, and 42 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicants have amended Claims 17, 23, 27, and 29 as suggested by the Examiner on pages 5-6 of the Office Action. Applicants respectfully request removal of the rejection under 35 U.S.C. § 112, second paragraph, of Claims 17-18, 23, 25, 29-30, 35, and 42.

CLAIM REJECTIONS – 35 U.S.C. §103

Independent Claims 1, 15, 22, 31, 39, and 50

Claims 1, 15, 22, 31, 39, and 50 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over United States Patent No. 4,076,179 issued to Tsukube (hereinafter “Tsukube”) and United States Patent No. 3,295,769 issued to Nilsson (hereinafter “Nilsson”). Claims 1, 22, and 50 also stand rejected under 35 U.S.C. § 103(a) as being unpatentable over United States Patent No. 3,692,422 issued to Girardier (hereinafter “Girardier”) in view of Tsukube and Nilsson. In addition, Claims 15, 31, and 39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Girardier in view of Nilsson.

Amended Claims 1, 15, 22, 31, 39, and 50 each specify that the cutter bar is “a straight elongated rectangular member extending substantially across a diameter of a generally circular interior passage adjacent to the inlet flange.” Claims 1, 15, 22, 31, 39, and 50 also each specify a chopping blade including “a serrated portion that passes adjacent to the cutter bar during rotation of the impeller.”

Tsukube teaches a cutter plate 30 fixed to a pump casing 2 and projecting toward a vane front edge 11. The cutter plate 30 is curvedly arranged along an absolute flow path in the pump, as shown in Figure 7 of Tsukube. An inner periphery 31 of the cutter plate 30 is smoothly continuous with an inner surface of a suction port 17, as shown in Figure 6 of Tsukube. Viewing from the axial direction, the inner periphery 31 extends tangentially with the suction port 17 outward. The distance between the inner periphery 31 and the center line of a pump shaft 13 increases smoothly with an increase in a distance from the suction port 17, being curved along the absolute flow path. An outer periphery 32 of the cutter plate 30 locates radially inside the outer periphery of an impeller 1. The cutter plate 30 provides a cutter blade 33 at the tip end. *Tsukube*, col. 4, line 58 to col. 5, line 5. Tsukube does not teach or suggest that the cutter plate 30 is a straight elongated rectangular member, as specified by amended Claims 1, 15, 22, 31, 39, and 50. Rather, the cutter plate 30 of Tsukube is curved along the suction port 17. Also, Tsukube does not teach or suggest that the cutter plate 30 extends substantially across a diameter

of the suction port 17. Rather, the cutter plate 30 of Tsukube only extends tangentially around the suction port 17. In addition, Applicants agree with the Examiner's statement on page 8 of the Office Action regarding Tsukube not disclosing a chopping blade with a serrated portion. Accordingly, Tsukube does not teach or suggest a chopping blade including "a serrated portion that passes adjacent to the cutter bar during rotation of the impeller," as specified by Claims 1, 15, 22, 31, 39, and 50.

Nilsson does not cure the deficiencies of Tsukube. Nilsson teaches a screen and rotor assembly 31, but does not teach or suggest any type of cutter bar that extends substantially across a diameter of a generally circular interior passage adjacent to an inlet flange, as specified by amended Claims 1, 15, 22, 31, 39, and 50. Also, Nilsson teaches an annular disk portion 32 with blades 33, 35 that can include a saw-tooth edge 36, as shown in Figure 5. However, the annular disk portion 32 is separate from an impeller 14 that includes its own fins 15. The annular disk portion 32 is driven separately from the impeller 14. Accordingly, Nilsson does not teach or suggest that the "impeller comprises a chopping blade" including "a serrated portion that passes adjacent to the cutter bar during rotation of the impeller," as specified by Claims 1, 15, 22, 31, 39, and 50. Applicants also respectfully traverse the Examiner's statement on pages 2 and 3 of the Office Action that "pumps having impellers with chopping blades that are serrated are well-known in the art, as taught by Nilsson, for example." Nilsson does not teach that the impeller 14 includes a serrated chopping blade, but rather a separate annular disk portion 32 that includes a saw-tooth edge 36. Applicants respectfully request the Examiner to provide a reference that teaches an impeller with a serrated chopping blade.

Even if Girardier is used as the primary reference in the rejections under 35 U.S.C. § 103(a), Girardier combined with Tsukube and Nilsson does not teach or suggest a cutter bar that is "a straight elongated rectangular member extending substantially across a diameter of a generally circular interior passage adjacent to the inlet flange." Girardier teaches that a sheering wheel 9 cooperates with at least one blade 28. The blade 28 is mounted in a recess of a support bracket 1 that is oriented radially with respect to the sheering wheel 9. The blade 28 has a cutting edge 29 that is located in immediate proximity to the inlet edges of the sheering wheel

vanes and parallel to a generating line of the cone which is circumscribed about the inlet edges. *Girardier*, col. 3, lines 46-53. Accordingly, *Girardier* does not teach that the blade 28 is a rectangular member extending substantially across a diameter of an admission duct 4, as shown in Figure 1 of *Girardier*. Rather, the blade 28 of *Girardier* only partially extends across the admission duct 4. Also, *Girardier* does not teach or suggest a chopping blade including “a serrated portion that passes adjacent to the cutter bar during rotation of the impeller.” Applicants agree with the Examiner’s statement on page 14 of the Office Action that *Girardier* does not disclose a serrated chopping blade.

In summary, none of Tsukuba, Nilsson, and *Girardier*, either alone or in combination, teaches or suggests a cutter bar that is “a straight elongated rectangular member extending substantially across a diameter of a generally circular interior passage adjacent to the inlet flange” or an impeller including a chopping blade with “a serrated portion that passes adjacent to the cutter bar during rotation of the impeller,” as specified by amended Claims 1, 15, 22, 31, 39, and 50. Thus, independent Claims 1, 15, 22, 31, 39, and 50 and dependent Claims 3, 5-14, 17-21, 23, 25-30, 32, 35-38, 42-45, and 51 are allowable.

With respect to independent Claim 39 and various dependent claims, Applicants respectfully traverse the Examiner’s statements in the Office Action that inlet and outlet ports can function as “an inspection port for observing the clearance between the impeller and the cutter bar.” Applicants respectfully assert that pipes or hoses generally would be coupled to the inlet and outlet ports which would block the inlet and outlet ports from being used as “inspection ports.”

Dependent Claims 3, 5-14, 17-21, 23, 25-30, 32, 35-38, 42-45, and 51

Claims 3, 5-14, 17-21, 23, 25-30, 32, 35-38, 42-45, and 51 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Tsukuba, Nilsson, and/or *Girardier*. Claims 3, 5-14, 17-21, 23, 25-30, 32, 35-38, 42-45, and 51 depend from independent Claims 1, 15, 22, 31, 39, and 50 and are therefore allowable for the reasons set forth above with respect to Claims 1, 15, 22, 31,

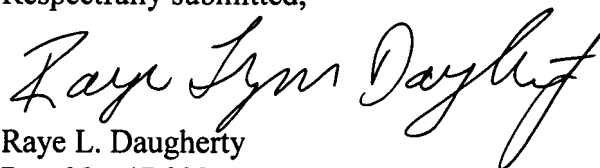
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39, and 50. Claims 3, 5-14, 17-21, 23, 25-30, 32, 35-38, 42-45, and 51 also include additional patentable subject matter not specifically discussed herein.

### CONCLUSION

In view of the above, Applicants respectfully request entry of the amendment and allowance of pending Claims 1, 3, 5-15, 17-23, 25-32, 35-39, 42-45, and 50-51.

Respectfully submitted,

A handwritten signature in black ink, reading "Raye Lynn Daugherty". The signature is written in a cursive, flowing style.

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